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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,300	01/25/2006	Ryo Suzuki	OGOSH42USA	2014
270 7590 07/22/2010 HOWSON & HOWSON LLP 501 OFFICE CENTER DRIVE SUITE 210 FORT WASHINGTON, PA 19034				
EXAMINER				
LI, JUN				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
07/22/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@howsonandhowson.com

Office Action Summary

Application No.

10/566,300

Applicant(s)

SUZUKI, RYO

Examiner

JUN LI

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2010.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 and 4-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/09/2010 has been entered.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, claim 1 recites "Ra represents a rare earth element consisting of Y, Sc and lanthanoid" which can be interpreted as Ra has to consist of all three (Y, Sc and lanthanoid) or a Markush group wherein Ra only need represents one of all three alternatives. However, in light of the instant specification (examples), the Ra represents only one of three elements (Y, Sc and lanthanoid) as in a Markush group. Thus the instant claim is interpreted as a Markush group for examination purpose and is suggested to be amended as "Ra represents an element selected from the group consisting of Y, Sc and lanthanide".

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. **Claim 1, 5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (JP09-260139) in view of Bates *et al.* (1992, Solid State Ionics, 52:235-242) and Watanabe (JP09-316630).**

Takeda teaches a perovskite oxide composition $\text{La}_{1-x}\text{A}_x\text{MnO}_z$ wherein A can be Ca, Ba or Sr and $0.05 \leq x \leq 0.5$, $2.7 \leq z \leq 3$ (Clm 1-3), which read onto the recited composition in the instant claim. Takeda further teaches a sputtering target such as a thin film can be formed by this perovskite composition via a sputtering technique (abstract, [00014]) and the crystal size of this compound is 10 nm-100 μm ([0007]) for a needed electrical resistance and magneto-resistive effect. It is to be noted that the range of x and z overlaps with the range of x and α in the instant claim and the crystal size also overlaps with the recited size in the claim, thus render a prima facie obviousness (See § MPEP 2144.05 [R-5] I).

Takeda is silent about the specific recited resistivity and relative density, and purity.

Bates teaches a perovskite composition with formula such as $\text{La}_{1-x}\text{Sr}_x\text{CrO}_3$, $\text{Y}_{1-x}\text{Sr}_x\text{CrO}_3$ (where $\alpha=0$) (abstract, line 7 and Fig 2, page 237), $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ (page 236 last paragraph line 7) having a particle size 1-100nm (abstract, line 3), a density greater than 95% and 98% (page 237, under section 3 Air-sintering of chromites, first

paragraph, line 8-9; first paragraph under section 3.2 and Fig 2; First line, page 239); a resistivity much less than $10 \Omega\text{m}$ (converted from electrical conductivity of Fig 6-8). Bates further discloses electrical properties of the manganites are dependent upon processing conditions, grain size and /or uniform compositions (page 240 right column second paragraph). Bates also discloses particle size, crystalline structure and surface area of manganite particles can be controlled (page 236 last paragraph).

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt probable processing condition to obtain a desired resistivity as shown by Bates to improve the sputtering target of Takeda because resistivity is a desired property and one of ordinary skill in the art can obtain a desired resistivity for this sputtering target's intended usage in solid oxide fuel cell as suggested by Bates (Introduction page 235).

Furthermore, it is noted the applied references (Takeda in view of Bates) already teach a substantially similar composition/product (i.e. sputtering target), thus similar properties such as resistivity, density, particle size, purity are expected absent evidence to the contrary.

With respect to the recited density and purity, Wantanabe teaches a sputtering target can be made with a relative density of 95-99%, and purity regulated $>4\text{N}$ and particle size less than $20 \mu\text{m}$ to prevent target cracking (abstract, claim 1,[0006], [0012]) via controlling pressure and sintering conditions. Wantanabe further discloses the sintered product is made to have a purity more than 4N or higher in order to prevent the growth of the grains in said sintered compact ([0011]) of the sputtering target while a

high density sintered compact is good for making a high density sputtering target without cracking ([0004]-[0010]).

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt the high purity and high density of the sputtering target as shown by Wantanabe to improve the sputtering target made from composition of $\text{La}_{1-x}\text{A}_x\text{MnO}_3$ as shown by Takeda in view of Bates. One of ordinary skill in the art would have been motivated to do so because controlling the sputtering target properties such as density, purity, particle sizes can minimize the cracking formation during a high power and high film formation sputtering process as indicated by Wantanabe ([0003],[0006], abstract, Clm1-3).

2. Claim 4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (JP09-260139) in view of Bates *et al.* (1992, Solid State Ionics, 52:235-242) and Watanabe (JP09-316630) as applied above, and further in view of Dortmund (Phase transitions of MnO_3 compounds revealed by nonlinear magneto-optics, Applied Physics, B74, 2002:749-758).

Takeda in view of Bates and Watanabe is silent about the recited A element is Mg and Ra element is Sc or Ce, Pr rare earth etc. However, Bates already teaches substitution of A site element of rare earth element such as La and Y by alkaline earth element such as Sr, and Ca. Thus A element is a Mg element is just an obvious modification over the prior arts.

Dortmund teaches a perovskite composition with a general formula $\text{R}_{1-x}\text{A}_x\text{MnO}_3$ wherein A being alkaline earth ions and R being rare earth elements such as selected

from Sc, Y, Er, Tm, Yb, Lu (page 749 right column lines 1-2 and right column second paragraph lines 1-3) and other perovskite compound such as $\text{Pr}_{1-x}\text{Ca}_x\text{MnO}_3$ or $\text{Nd}_{1-x}\text{Sr}_x\text{MnO}_3$ wherein x can be from 0 to 1 (abstract, page 755 first paragraph, Fig 8). It is noted that rare earth elements including scandium, yttrium, and the fifteen lanthanides (i.e. lanthanoid elements) and alkaline earth elements can be Mg, Ca, Sr.

It would have been obvious to one of ordinary skill in the art at the time of invention filed to adopt such perovskite compound as shown by Dortmund to modify the sputtering target of Takeda in view of Bates and Watanabe because such perovskite composition provides unusual magnetic and electronic properties (page 749, right column first 4 lines) which can help making a desired final product, i.e. sputtering target and such composition also expands the sputtering target composition choices. Furthermore, combining known elements for predictable results is well within the scope of one ordinary skill in the art.

Furthermore, it is noted the applied references already teach a substantially similar composition/product (i.e. sputtering target), thus similar properties such as resistivity, density, particle size, purity are expected absent evidence to the contrary.

Response to Arguments

Applicant's arguments filed on 04/09/2010 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642

F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In response to applicant's arguments about Takeda (JP'139) not disclosing the density, it is noted that the applied references already teaches a substantially similar sputtering target composition, thus similar properties such as density, resistivity, particle size, purity etc are expected to be associated with such sputtering target absent evidence to the contrary. Furthermore, Watanabe teaches sputtering target from a perovskite composition with a high density, purity and size can help preventing crack, thus to one of ordinary skill in the art it would have been obvious to adopt such high density, purity and probable size of sputtering target to minimize crack formation.

As for Takeda not teaching a sputtering target but a laser ablation process for making perovskite composition, it is noted that cited laser ablation is just one specific embodiment of Takeda's teachings which does not limit the expressed general teaching wherein perovskite compound can be made by sputtering technique ([0014]) with which a sputtering target is expected. As for Watanabe not teaching similar perovskite composition as Takeda, it is noted Watanabe is also directed to a sputtering target similar as Takeda and the sputtering target with high density, special particle size and purity will minimize crack formation. It would have been obvious for one ordinary skill in the art to adopt such high density, purity and probable sizes as shown by Watanabe to modify the sputtering target of Takeda for minimizing crack formation as suggested by Watanabe.

As for Bates and Dortmund not teaching sputtering target, it is noted that such limitation has already been met by Takeda.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUN LI whose telephone number is (571)270-5858. The examiner can normally be reached on Monday-Friday, 8:00am-5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUN LI/

Examiner, Art Unit 1793

July 11, 2010

/Melvin Curtis Mayes/

Supervisory Patent Examiner, Art Unit 1793